

PTO 06-3585

Japanese Kokai Patent Application  
No. Hei 11[1999]-185164

SALES REGISTER

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UNITED STATES PATENT AND TRADEMARK OFFICE  
WASHINGTON, D.C. APRIL 2006  
TRANSLATED BY THE RALPH MCELROY TRANSLATION COMPANY

JAPANESE PATENT OFFICE  
PATENT JOURNAL (A)  
KOKAI PATENT APPLICATION NO. HEI 11[1999]-185164

Int. Cl. <sup>6</sup> :	G 07 G 1/12
Filing No.:	Hei 9[1997]-365351
Filing Date:	Decmeber 19, 1997
Publication Date:	July 9, 1999
No. of Claims:	2 (Total of 8 pages; FD)
Examination Request:	Not filed

Sales Register

[Hanbai toroku sochi]

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[There are no amendments to this patent.]

Claims

1. A sales register that executes sales registration of merchandise through input operations that accompany the sales of merchandise,

characterized in that it is equipped with a means for setting up an item that can be refilled as a refill specification item, a means for registering the actual number of sales of this refill specification item and the number of refills for each time sector, and a means for outputting the aforementioned sales number, refill number, and the service rate of said item based on them for each time sector.

2. A sales register that executes sales registration of merchandise through input operations that accompany the sales of merchandise,

characterized in that it is equipped with a means for setting up an item that can be refilled as a refill specification item, a means for registering the actual number of sales of this refill

specification item and the number of refills, and a means for outputting the number of items that are offered, which is the total of the aforementioned number of sales and the number of refills, and the cost.

Detailed explanation of the invention

[0001]

Field of technology of this invention

This invention concerns a sales register that registers merchandise that is sold.

[0002]

Prior art

This type of conventional sale register indicated as a POS terminal in the official report for Japanese Kokai Patent Application No. Hei 7[1995]-78289, for example, is installed inside a fast food restaurant or a family restaurant, and is structured to register sales of merchandise and also manage sales circumstances.

[0003]

This type of restaurant often offers beverages like hot coffee, for example, with free refills. This refill item is naturally 0 yen, however, the same amount as for the item that is generally sold still applies as the cost.

[0004]

With conventional sales registers, handling of said refill item is not implemented in particular. Therefore, for also understanding the cost for the aforementioned refill item with said sales register, an item with a unit price of 0 yen must be set up for each refill and registered by the same method as for regular sales.

[0005]

Problem to be solved by the invention

A sale of 0 yen is registered with that method, and the number of customers for that is also calculated as 1, and a problem results in that the calculated customer unit price is lower than the actual amount. It also requires an inconvenience of adding an item with a different set-up for understanding the number including the number of sales of the refill item and the number of refills and for calculating the service rate of the refill item, and prediction of the remaining amount of merchandise and the analysis process for judging the level of service have been difficult.

[0006]

This invention was achieved to solve said conventional technological problem and to offer a sales register that easily executes judgment and analysis with respect to refills of merchandise.

[0007]

Means to solve the problems

The sales register in Claim 1 in the invention for executing sales registration of merchandise through input operations that accompany sales of merchandise is equipped with a means for setting up an item that can be refilled as a refill specification item, a means for registering the actual number of sales for this refill specification item and the number of refills for each time sector, and a means for outputting the aforementioned sales number, refill number, and the service rate of said item based on them for each time sector.

[0008]

Through the invention in Claim 1, a sales register that executes sales registration of merchandise through input operations that accompany sales of merchandise is equipped with a means for setting up an item that can be refilled as a refill specification item, a means for registering the actual number of sales for this refill specification item and the number of refills for each time sector, and a means for outputting the aforementioned sales number, refill number, and the service rate of said item based on them for each time sector. Accordingly, with an item that is prepared ahead, the remaining amount of said item can be predicted for each time sector, and a proper preparation can be made, and the level of service can be judged, and the sales of items for each time sector can be accurately analyzed.

[0009]

The sales register in Claim 2 in the invention for executing sales registration of merchandise through input operations that accompany sales of merchandise is equipped with a means for setting up an item that can be refilled as a refill specification item, a means for registering the actual number of sales for this refill specification item and the number of refills, and a means for outputting the number of items that are offered, which is the total of the aforementioned number of sales and the number of refills, and the cost.

[0010]

Through the invention in Claim 2, a sales register that executes sales registration of merchandise through input operations that accompany sales of merchandise is equipped with a means for setting up an item that can be refilled as a refill specification item, a means for registering the actual number of sales for this refill specification item and the number of refills, and a means for outputting the number of items that are offered, which is the total of the aforementioned number of sales and the number of refills, and the cost. As a result, the cost of said item including refills can be accurately managed.

[0011]

Embodiment of the invention

Next, an embodiment of this invention will be described in detail based on figures. Figure 1 is a diagonally viewed diagram of a POS terminal (1) as a sales register in this invention. Figure 2 is a block diagram of the function of the POS terminal (1). Figure 3 is a diagram that shows the arrangement of keys of a keyboard (2) at the POS terminal (1).

[0012]

The POS terminal (1) indicated in Figure 1 is a type that is situated at a fast food restaurant that offers snacks and beverages, for example, and (2) is a keyboard that consists of item keys (2A) for each of various kinds of merchandise and function keys (2B), as shown in Figure 3. (3) is an operational display that displays the item name, item price, and the total amount, etc., corresponding to the operation of the keys, (4) is an insertion opening for inserting a RAM card (13) (Figure 2). (5) is an operation selecting mode key that is used when changing the operation, (6) is a receipt journal printer, and (7) is a cash drawer. A display for customer (8) (Figure 2) is also provided for displaying the item price and the total amount, etc., for the customer at the back face of the operational display (3).

[0013]

By turning on the aforementioned mode key (5), operations in various modes (registration (sales registration), inspection, calculation, training, printer problem, and set-up, etc.) are possible.

[0014]

The POS terminal (1) described above has the structure illustrated in Figure 2 consisting of a CPU (central processing unit) (9), ROM (10) that stores a multi-tasked OS (operating system) and an initial setup program, etc., RAM (11) that can read and write and that is equipped

with a merchandise master file, accumulation file, and the operational program and master file for the POS terminal (1), etc., operational display control circuit (16) that is connected to the aforementioned operational display (3), VIDEO-RAM (18) that stores the data of the operational display (3), FONT-ROM (12) for the operational display (3), keyboard input circuit (14) connected to the aforementioned keyboard (2), printer control circuit (15) connected to the aforementioned printer (6), customer display control circuit (17) connected to the aforementioned customer display (8), mode key control circuit (19) connected to the aforementioned mode key (5), clock (20), on-line communication control circuit (21) for communicating with an external system (upper host computer) by a modem (22) using a telephone line, in-line communication control circuit (24) for communicating with another POS terminal, etc., and the RAM card (13) described above. They are connected by a data bus.

[0015]

Next, the operation of the POS terminal (1) in this invention will be explained using Figures 4~11. First, at the POS terminal (1) in this invention, if a hot coffee refill is free of charge, for example, said hot coffee can be set up as a refill specification item. The set-up operation for said refill specification item will be explained below using Figures 4~6.

[0016]

While the aforementioned mode key (5) is in the setup mode, and a refill item setup item is selected on the operational display (3) by the keyboard (2), CPU (9) will have a screen display on the operational display (3) as shown in Figure 4. At this mode, when there is a key input at Step S1 in Figure 6, CPU (9) will judge if said key input is an item key 2A or not at Step S2. If the item key 2A for hot coffee is pressed, for example, the CPU (9) will display the item code that is set up at the key master and the item code and item name of the refill specification item from the item master on the operational display (3) as shown in Figure 4 at Step S3, and will write them into the refill item master at Step S4.

[0017]

The aforementioned key master, refill item master, and the item master are provided within the RAM (11) in the form of files, and the upper left in Figure 5 is the item master, the lower left is the key master, and the right is the item master. The arrow in Figure 5 shows the flow of the process at the aforementioned Step S3. In this case, hot coffee of item code 1000 that is set up to the key code 001 is set up as a refill specification item.

[0018]

If the key input at Step S1 is not an item key, the CPU (9) proceeds from Step S2 to Step 5, and judges if it is the registration key within the function keys (2B) or not. If it is not the registration key, it judges if it is a number key within the function keys (2B) or not at Step S9. If it is a number key, said key input will be stored in the key input buffer, and the process returns to Step S1.

[0019]

Then, if it is the registration key at Step S5, it will judge if a number key is input or not at Step S6. If one is input, it searches through the aforementioned item master from the numbers within the aforementioned key input buffer at Step S7, and judges if the code at the number within the key input buffer is within the item master or not at Step S8. If it is there, the process proceeds to Step S3 and Step S4, and writing of the refill specification item as described above will be executed.

[0020]

More precisely, a refill specification item can also be set up by pressing the registration key after directly inputting the item code by number keys instead of the item key (2A) (in this case, 1000 is input as the item code, and the registration key is pressed).

[0021]

Next, an actual sales registration for an item will be processed by setting the mode key (5) in the sales registration mode. When the receive/total key of function keys (2B) is pressed at the end of the sales registration process, the CPU (9) develops the information of each item that is registered for sales to individual summaries related to items including a summary according to item and time sector (within RAM (11)) as shown in Figure 8.

— [0022]

In this case, CPU (9) will develop the information of each item from the sales transaction file as the sales number, sales price, and the cost according to item code, time sector, and the purchase method (eat-in (in the store), take-out (home), and drive-through).

[0023]

Next, the registration operation of refill items will be explained using Figures 7 through 9. When a refill for the aforementioned hot coffee is requested by a customer in the sales registration mode, the refill key of the function keys (2B) (indicated by 'refill' in Figure 3) or a

number key is pressed. CPU (9), when there is a key input at Step S11 in Figure 9, judges if said key input key is the refill key or not at Step S12.

[0024]

If the refill key is pressed, the process proceeds to Step S13, and whether a number key is input or not is judged. If not, the refill number will be set at 1 at Step S16, and the process proceeds to Step S15. Then, the CPU (9) displays the effect of the refill and its number (one) at the operating display (3) as shown in Figure 7, and adds the number of refills to the summary according to the merchandise and the time sector (Figure 8) from the current time at Step S16.

[0025]

Here, the sales number according to the merchandise method is written for each time sector in the summary according to the item and the time sector in Figure 8 while corresponding to the merchandise code of each kind of merchandise, as described above. A column without the merchandise code is provided at the bottom row, and this column is used for writing in refill items. Accordingly, the take-out column and drive-through column that do not have refills will not be used.

[0026]

Accordingly, in the process at Step S16, the number of refills will be added to the eat-in column at the bottom row in Figure 8. More precisely, when 1 cup of coffee is generally purchased by an eat-in customer, 1 is added to the eat-in column for the merchandise code 1000 of the summary according to the merchandise and the time sector in Figure 8 for the applicable time sector, and when said customer has 1 refill, 1 is added to the eat-in column in the bottom row of the summary according to the merchandise and the time sector in the time sector of the refill.

[0027]

When the key input at Step S11 is not a merchandise key, CPU (9) proceeds from Step S12 to Step S17, and judges if it is a number key within the function keys (2B). If it is a number key, said key input will be stored in the key input buffer, and the process returns to Step S11.

[0028]

Then, when the refill key is pressed afterwards, CPU (9) proceeds from Step S12 to Step S13, and judges if there is a number key or not. The process goes to Step S14 because there is one in this case, uses the number within the aforementioned key input buffer as the refill number,



and proceeds to Step S15. Then, CPU (9) displays the effect to the refill and said refill number at the operation display (3), and adds the refill number to the summary according to the merchandise and the time sector (Figure 8) from the current time at Step S16.

[0029]

More precisely, when only the refill key of the function keys (2B) is pressed, 1 is added as the refill. When the refill key is pressed after inputting the refill number by a number key, said refill number will be added as the refill number.

[0030]

The data that are registered in this way can be printed out by a printer (6) as reports as shown in Figures 10 and 11 from the CPU (9) at daily inspections and at the calculation at the end of the day. Figure 10 indicates a refill report, and CPU (9) searches through the refill merchandise master and merchandise master and prints out the merchandise code of merchandise that is set up as refill specification merchandise as described above (in this case, 1000 because it is hot coffee) and the merchandise name in this refill report.

[0031]

Successively, the CPU (9) searches through the summary according to the merchandise and the time sector by the merchandise code of merchandise set up as refill specification merchandise (1000), prints out the eat-in (EI) sales number (general sales) for said merchandise code, next prints out (refill) the refill number (number) in the column for the refill specification merchandise in the bottom row, and furthermore next prints out the take-out sales number and the drive-through sales number of the aforementioned merchandise code respectively according to the time sector. Take-out and drive-through will be printed together in total as TD.

[0032]

Furthermore, CPU (9) eliminates the refill number from the eat-in sales number, and finally prints out the service rate (S rate) of said merchandise according to the time sector. Through this, with an item like the aforementioned hot coffee, for example, that is prepared beforehand in a pot, it is possible to predict the remaining amount of said merchandise according to the time sector, which allows for proper preparation beforehand, and to judge the service level and accurately analyze the merchandise sales according to the time sector.

[0033]

Next, Figure 11 shows a report according to item. In this report according to item, CPU (9) first prints the merchandise name by the merchandise code and the merchandise master. Successively, the total eat-in sales number, total take-out sales number, and the total drive-through sales number for each kind of merchandise in each time sector are put together, the total sales number of said merchandise is calculated and printed out, the structural ratio (number) is calculated and printed out from the total sales number in the merchandise category of said merchandise and the total sales number of the aforementioned said merchandise.

[0034]

Successively, CPU (9) calculates and prints out the total cost of said merchandise, and prints out the category total after completing the computation for all merchandise in said merchandise category, and shifts to the next category (In Figure 11, from cake category to coffee category).

[0035]

In this coffee category, hot coffee is set up as a refill specification merchandise. Accordingly, the CPU (9) prints the number for all hot coffee that was offered including the refill number (400 in Figure 11) under the number of hot coffees generally sold, and furthermore prints out the total cost of said offered number next to it (10,528.00 in Figure 11). Through this, accurate cost management of said merchandise including refills is possible.

[0036]

Effect of the invention

Through the invention in Claim 1 as described in detail above, the sales register that executes sales registration of merchandise through input operations that accompany sales of merchandise is provided with a means for setting up an item that can be refilled as a refill specification item, a means for registering the actual number of sales for this refill specification item and the number of refills for each time sector, and a means for outputting the aforementioned sales number, refill number, and the service rate of said item based on them for each time sector. Accordingly, with merchandise that is prepared beforehand, for example, the remaining amount of said merchandise can be predicted according to the time sector, and a proper preparation can be made, and the service level can be judged so that merchandise sales according to the time sector can be accurately analyzed.

[0037]

Also through the invention in Claim 2, the sales register that executes sales registration of merchandise through input operations that accompany sales of merchandise is provided with a means for setting up an item that can be refilled as a refill specification item, a means for registering the actual number of sales for this refill specification item and the number of refills, and a means for outputting the number of items that are offered, which is the total of the aforementioned number of sales and the number of refills, and the cost. Accordingly, an accurate management of the cost of said merchandise including refills is possible.

#### Brief description of the figures

Figure 1 is a diagonally viewed diagram of a POS terminal as a sales register in this invention.

Figure 2 is a block diagram of the function of the POS terminal in Figure 1.

Figure 3 is a diagram that shows the arrangement of keys of the keyboard at the POS terminal in Figure 1.

Figure 4 is a diagram that shows the screen of the operating display when setting up refill specification merchandise at the POS terminal in Figure 1.

Figure 5 is a diagram that shows the refill merchandise master, key master, and merchandise master within the RAM at the POS terminal in Figure 1.

Figure 6 is a flow chart that indicates the flow of the operation when setting up refill specification merchandise at the POS terminal in Figure 1.

Figure 7 is a diagram that shows the screen of the operating display when registering the number of refills at the POS terminal in Figure 1.

Figure 8 is a diagram that indicates a summary according to the merchandise and the time sector within the RAM at the POS terminal in Figure 1.

Figure 9 is a flow chart that shows the flow of the operation at the registration of a refill number at the POS terminal in Figure 1.

Figure 10 is a diagram that shows a refill report that is printed out and output by the POS terminal in Figure 1.

Figure 11 is a diagram that shows a report according to merchandise that is printed out and output at the POS terminal in Figure 1.

#### Explanation of reference symbols

- 1     POS terminal (sales register)
- 2     Keyboard
- 3     Operating display

- 5 Mode key
- 6 Receipt journal printer
- 9 CPU
- 10 ROM
- 11 RAM

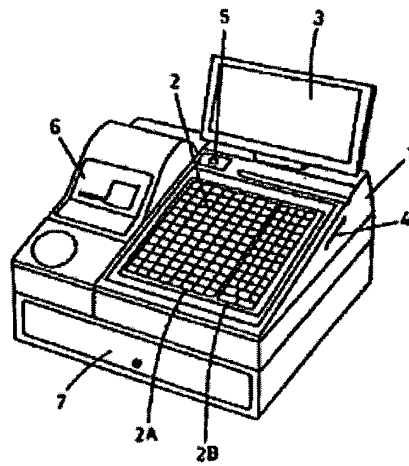


Figure 1

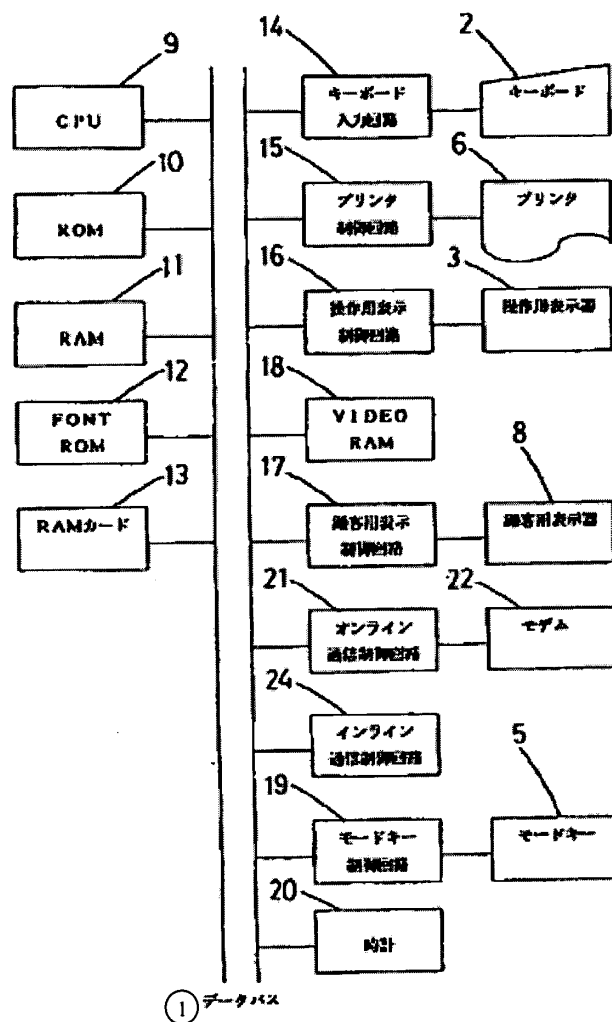


Figure 2

- Key:
- |    |                                   |
|----|-----------------------------------|
| 1  | Data bus                          |
| 2  | Keyboard                          |
| 3  | Operating display                 |
| 5  | Mode key                          |
| 6  | Printer                           |
| 8  | Customer display                  |
| 13 | RAM card                          |
| 14 | Keyboard input circuit            |
| 15 | Printer control circuit           |
| 16 | Operating display control circuit |
| 17 | Customer display control circuit  |
| 19 | Mode key control circuit          |
| 20 | Clock                             |

- 21 Online communication control circuit  
 22 Modem  
 24 Inline communication control circuit

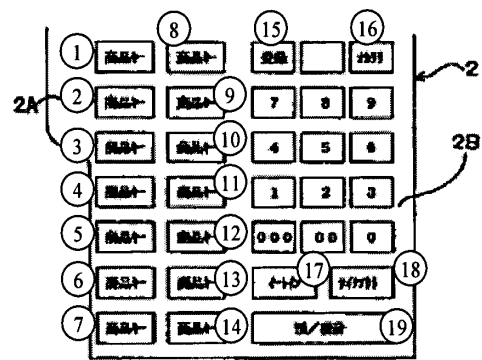


Figure 3

- Key: 1 Merchandise key  
 2 Merchandise key  
 3 Merchandise key  
 4 Merchandise key  
 5 Merchandise key  
 6 Merchandise key  
 7 Merchandise key  
 8 Merchandise key  
 9 Merchandise key  
 10 Merchandise key  
 11 Merchandise key  
 12 Merchandise key  
 13 Merchandise key  
 14 Merchandise key  
 15 Registration  
 16 Refill  
 17 Eat-in  
 18 Take-out  
 19 Receive/total

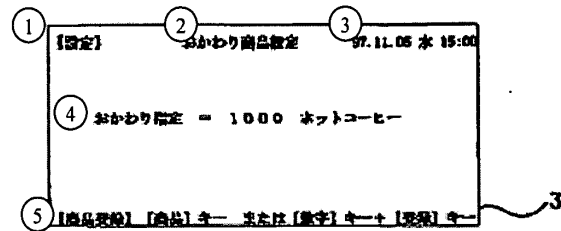


Figure 4

- Key: 1 [Setup]  
 2 Refill merchandise setup  
 3 November 06, 1997 Wednesday 15:00  
 4 Refill specification=1000 hot coffee  
 5 [Merchandise registration] [merchandise] key or [number] key + [registration] key

1	2	3	4	5	6	7	8	9
0001	1	ハンバーガー	200					
0002	2	チーズバーガー	220					
1000	3	ホットコーヒー	250					

Figure 5

- Key: 1 Merchandise code for refill merchandise  
 2 Key code  
 3 Merchandise code  
 4 Merchandise code  
 5 Merchandise name  
 6 Hamburger  
 7 Cheeseburger  
 8 Hot coffee  
 9 Unit price

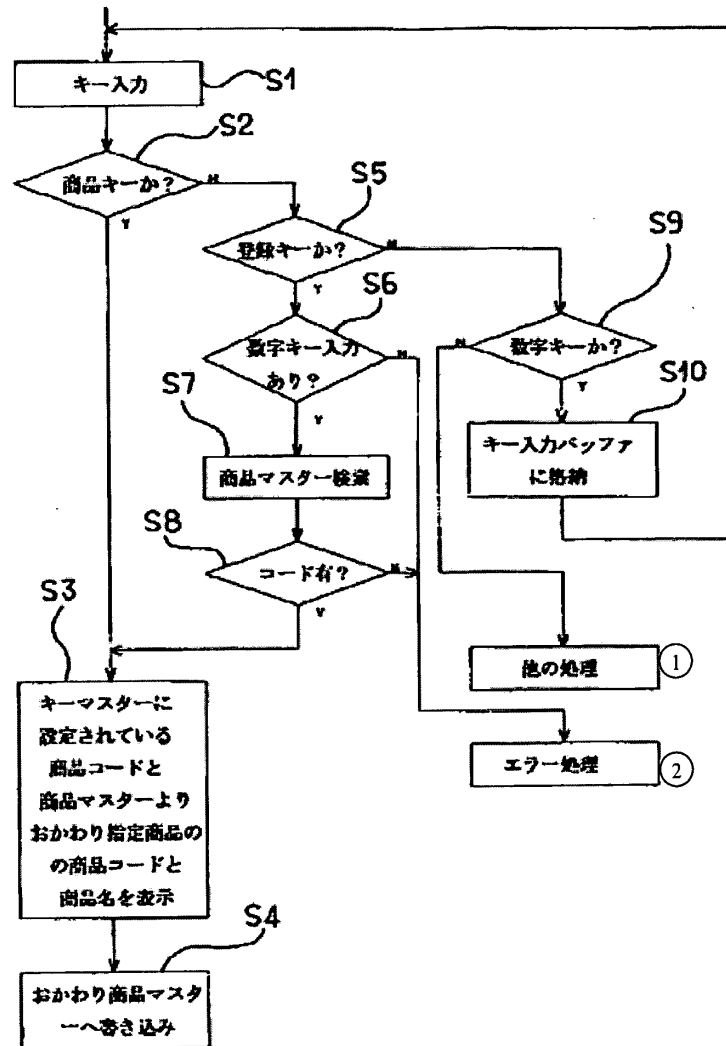


Figure 6

- Key: 1 Other processing  
 2 Error processing  
 S1 Key input  
 S2 Is it the merchandise key?  
 S3 Indicates a merchandise code and the merchandise name of the refill specification item by the item code that is set up in the key master and the merchandise master  
 S4 Write into the refill merchandise master  
 S5 Is it the register key?  
 S6 Has a number key been input?  
 S7 Search through the merchandise master  
 S8 Is the code present?



S9 Is it a number key?  
S10 Store in the key input buffer

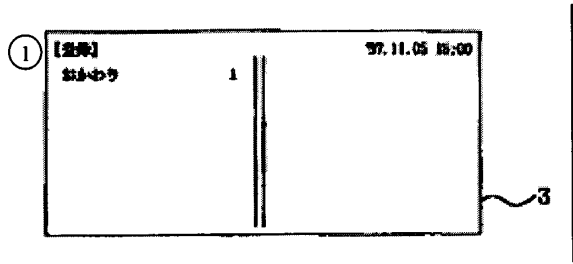


Figure 7

Key: 1 [Registration] refill

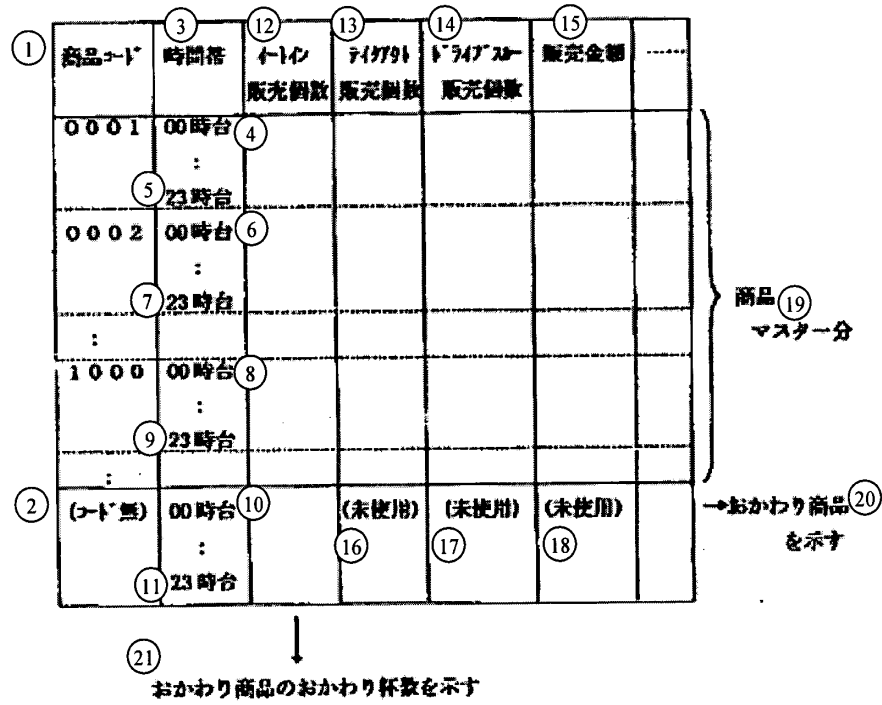


Figure 8

Key: 1 Merchandise code  
2 (No code)  
3 Time sector  
4 00 hour  
5 23 hour

6 00 hour  
 7 23 hour  
 8 00 hour  
 9 23 hour  
 10 00 hour  
 11 23 hour  
 12 Eat-in sales number  
 13 Take-out sales number  
 14 Drive-through sales number  
 15 Sales amounts  
 16 (Not used)  
 17 (Not used)  
 18 (Not used)  
 19 Amount for the merchandise master  
 20 Indicates the refill merchandise  
 21 Indicates the number of refills of refill items

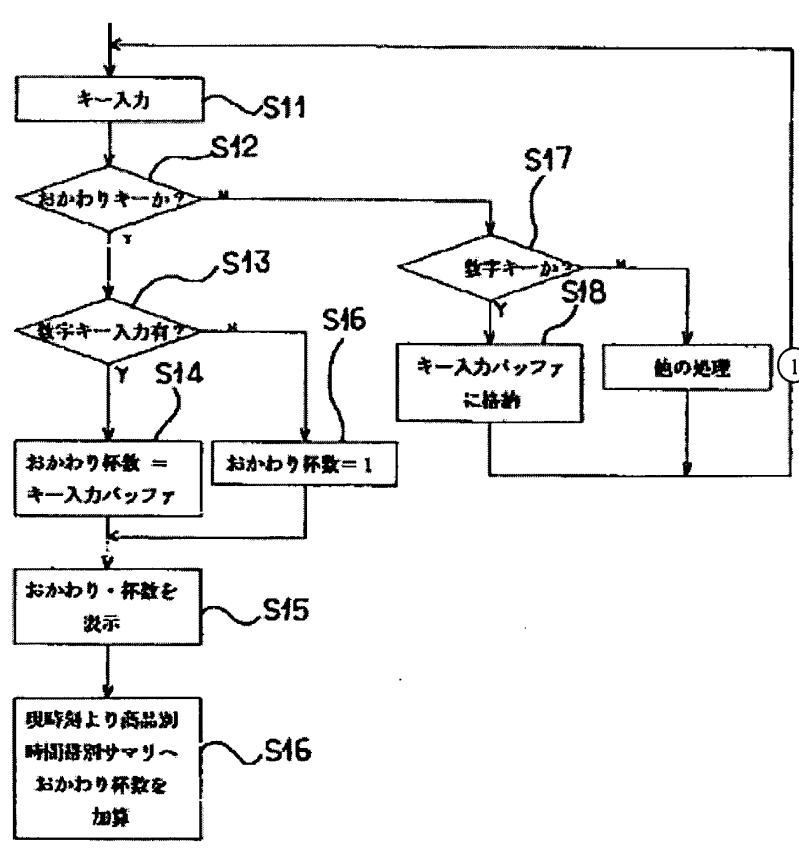


Figure 9

- Key: 1 Other processing  
 S11 Key input  
 S12 Is it the refill key?  
 S13 Is a number key input?  
 S14 Refill coefficient=key input buffer  
 S15 Displays the refill number  
 S16 The refill number is added to the summary according to the merchandise and the time sector from the current time  
 S16 Refill number=1  
 S17 Is it a the number key?  
 S18 Store in the key input buffer

①	おかわりレポート				
②	97年10月30日(木) 23:10				
	*** 店舗 - 日割 ***				
④	* おかわり レポート *				
	1000 ホットコーヒー				
⑥	時間	区1	おかわり	TD	S率
	00	0	7	0	0
	01	0	0	0	0
	02	0	0	0	0
	03	0	0	0	0
	04	0	0	0	0
	05	0	0	0	0
	06	4	0	1	0
	07	17	11	3	05
	08	13	5	5	38
	09	16	10	3	03
	10	22	7	6	32
	11	14	8	7	43
	12	18	12	18	67
	13	11	10	13	91
	14	18	8	8	44
	15	19	6	6	33
	16	16	7	4	44
	17	14	11	5	79
	18	7	0	4	0
	19	3	6	8	107
	20	3	0	3	0
	21	7	0	4	0
	22	2	0	3	0
	23	0	0	0	0
	計 204 98 98 48				

Figure 10

- Key: 1 Refill report  
 2 October 30, 1997 (Thursday) 23:10  
 3 Calculation-daily  
 4 Refill report  
 5 Hot coffee  
 6 Time  
 7 Refill  
 8 S rate

① 商品別レポート				②
97年10月30日 (木) 23:10				
*** 通算 - 日報 ***				
* ④ 商品別 数量 レポート *				
⑤ 商品名	数量	%	原価	
⑥ マンタ	25	15.1	1,340.00	
⑦ ストロベリー	22	23.2	1,350.40	
⑧ チーズケーキ	12	2.7	202.22	
	:			
	:			
⑨ 部門名				
⑩ タート	128	12.5	8,324.22	
*****				
	:			
*****				
⑪ 商品名	数量	%	原価	
⑫ ホットコーヒー	302	52.1	7,345.64	
⑬ リフレッシュ	406		10,523.00	
⑭ フォレスト	26	6.0	1,525.40	
⑮ デザート	104	17.3	6,062.32	
	:			
	:			
⑯ 部門名				
⑰ デザート	580	25.9	24,800.20	
*****				
	:			
	:			
⑱ 総額			1,038円	
⑲ 総額			120,530.58円	

Figure 11

- Key:
- 1 Report according to merchandise
  - 2 October 30, 1997 (Thursday) 23:10
  - 3 Calculation-daily
  - 4 According to merchandise, item number, report
  - 5 Merchandise name, number, %, unit price
  - 6 Mont Blanc
  - 7 Strawberry short
  - 8 Cheesecake
  - 9 Category name
  - 10 Tart
  - 11 Merchandise name, number, %, unit price
  - 12 Hot coffee
  - 13 Refill system

14 Ice coffee  
15 Coffee olé  
16 Category name  
17 Coffee  
18 Total number: 1,038  
19 Total price: 120,536,58 yen